MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the College-wide Curriculum Committee.

DEPT. Diesel Technology                      COURSE NO. DSL1135

COURSE TITLE  Fuel Injection Principles

CATALOG DESCRIPTION
This course allows students an opportunity to apply theory in the laboratory environment. In the theory we will cover combustion chamber designs and the difference between gas and diesel engines. Burning the fuel and power transfer in the principles in fuel injection. The student will disassemble, inspect, evaluate, reassemble, and calibrate at less 3 sets of injectors to give them the realization of what a properly operating engine needs to perform.

3cr.

AUDIENCE  First year diesel students

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area      : by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: (Prerequisites: Basic engines, pre instructors recommendation.)

LENGTH OF COURSE 31 Days 12:30-3:00

THIS COURSE IS USUALLY OFFERED:
Every year X   Every other year   Fall X   Spring   Summer   Undetermined

Four goals are emphasized in course at Minnesota West Community & Technical College:

1. ACADEMIC CONTENT:
   A. To learn combustion chamber designs.
   B. To learn the stages of combustion, burning of the fuel.
   C. To learn injector operation.
D. To learn rebuilding and testing of injectors.
E. To test injectors
F. To analyze the operation.
G. To make proper repairs and adjust to specifications.

2. THINKING SKILLS:
   A. To analyze the operation of the injectors when testing on an injector tester.
   B. To troubleshoot the effect on performance of the engine dependant on operation.
   C. To troubleshoot the repair necessary to get the proper operation of a set of injectors.
   D. To troubleshoot timing operation when set right and wrong.

3. COMMUNICATIONS SKILLS:
   A. Participation in class discussion.
   B. Complete written reports and assignments.
   C. To improve oral communications skills through class presentations.

4. HUMAN DIVERSITY:
   A. To understand the roles of the technician in communicating with a diverse population.
   B. To work effectively in teams comprised of diverse backgrounds.
   C. To express personal philosophies on diverse issues.

TOPICS TO BE COVERED:
To learn burning of fuel, combustion chamber design. **To test all the different types of injectors. To clean the different types of injectors. To reassemble and adjust the injectors to manufacture specs. To set and adjust the timing on a number of different types of engines.**

LIST OF EXPECTED COURSE OUTCOMES: Learn how to test and clean repair and adjust injectors. Set and adjust the timing on different types of fuel systems. Learn about the burning of fuel in the engine.

LEARNING/TEACHING TECHNIQUES used in the course are:

- Collaborative Learning
- Student Presentations
- Creative Projects
- Lecture
- Demonstrations
- Lab

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Oral Presentations
- Textbook Problems
- Group Problems
- Other (describe below)
- Tests
- Worksheets
- Papers
- Term Paper
- Individual Projects
- Collaborative Projects
- Portfolio
EXPECTED STUDENT LEARNING OUTCOMES: Learn how to test and clean repair and adjust injectors. Set and adjust the timing on different types of fuel systems. Learn about the burning of fuel in the engine.

"This course will cover the characteristics of hazardous wastes and its safe handling, storage, and disposal."

The information in this course outline is subject to revision

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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